Part 1 General

1.1 DEFINITIONS

.1 Clearing consists of cutting off trees and brush vegetative growth to not more than specified height above ground and disposing of felled trees, previously uprooted trees and stumps, and surface debris.

.2 Close-cut clearing consists of cutting off standing trees, brush, scrub, roots, stumps and embedded logs, removing at, or close to, existing grade and disposing of fallen timber and surface debris.

.3 Grubbing consists of excavation and disposal of stumps and roots to not less than specified depth below existing ground surface.

1.2 STORAGE AND PROTECTION

.1 Prevent damage to fencing, trees, landscaping, natural features, bench marks, existing buildings, existing pavement, utility lines, site appurtenances, water courses, root systems of trees which are to remain.

.1 Repair damaged items to approval of Departmental Representative.

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Not Used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures. Refer to Section 01 35 43 – Environmental Procedures.

.2 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 PREPARATION

.1 Inspect site and verify with Departmental Representative, items designated to remain.

.2 Locate and protect utility lines: preserve in operating condition active utilities traversing site.

.1 Notify Departmental Representative immediately of damage to or when unknown existing utility line(s) are encountered.

.2 When utility lines which are to be removed are encountered within area of operations, notify Departmental Representative in ample time to minimize interruption of service.

.3 Notify utility authorities before starting clearing and grubbing.

.4 Keep roads and walks free of dirt and debris.

3.3 CLEARING

.1 Clearing includes felling, trimming, and cutting of trees into sections and satisfactory disposal of trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within cleared areas.

.2 Clear as indicated. In areas to be subsequently grubbed, height of stumps left from clearing operations to be not more than 1000mm above ground surface.

.3 Cut off branches and cut down trees overhanging area cleared.

3.4 CLOSE CUT CLEARING

.1 Close cut clearing to ground level.

3.5 GRUBBING

.1 Remove and dispose of roots, matted roots, and designated stumps from indicated grubbing areas.

.2 Grub out stumps and roots to not less than 300 mm below ground surface.

3.6 REMOVAL AND DISPOSAL

.1 Remove cleared and grubbed materials off site.

.1 Do not burn or bury cleared and grubbed material on site.

3.7 FINISHED SURFACE

.1 Leave ground surface in condition suitable for stripping of topsoil.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM C 136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.2 ASTM D 698-12e2, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft n) (600 kN-m/m3).

.2 Canadian General Standards Board (CGSB)

.1 CGSB 8.2-M88-CAN/CGSB Sieves, Testing, Woven Wire, Metric

.3 Ontario Provincial Standard Specifications (OPSS)

.1 OPSS.MUNI 1010-13 Material Specification for Aggregates – Granular A, B, M and Select Subgrade Material.

1.2 DEFINITIONS

.1 Excavation classes: two classes of excavation will be recognized; common excavation and rock excavation.

.1 Rock : any solid material in excess of 1.00m ^{3} and which cannot be removed by means of heavy duty mechanical excavating equipment with 0.95 to 1.15 m^3 bucket. Frozen material is not classified as rock.

.2 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.

.2 Topsoil:

.1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

.2 Material reasonably free from subsoil, clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than 25 millimeters in any dimension.

.3 Waste material: excavated material unsuitable for use in work or surplus to requirements.

.4 Approved Native Backfill: excavated site material, free of construction debris, with no stones or rubble larger than 200mm, approved for re-use by Departmental Representative.

.5 Unsuitable materials:

.1 Excessively wet material which can not achieve indicated compaction.

.2 Weak and compressible materials under excavated areas.

.3 Frost susceptible materials under excavated areas.

.4 Frost susceptible materials:

.1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM C136 : CAN/CGSB-8.2..

.2 Table:

Sieve Designation	% Passing
2.00 mm	100
0.10 mm	45 - 100
0.02 mm	10 - 80
0.005 mm	0 - 45

.5 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 00 10 – General Instructions.

.2 Submit records of underground utility locates, indicating: location plan of existing utilities as found in field, clearance record from utility authority.

1.4 PROTECTION OF EXISTING FEATURES

.1 Existing buried utilities and structures:

.1 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.

.2 Prior to beginning excavation Work, notify applicable authorities having jurisdiction, establish location and state of use of buried utilities and structures. Authorities having jurisdiction to clearly mark such locations to prevent disturbance during Work.

.3 Confirm locations of buried utilities by careful test excavations in advance of main work.

.4 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered.

.5 Where unknown utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before removing or re-routing. Costs for such Work to be paid by Departmental Representative.

.6 Record location of maintained, re-routed and abandoned underground lines.

.7 Confirm locations of recent excavations adjacent to area of excavation.

1.5 EXISTING CONDITIONS

.1 Buried services:

.1 Before commencing work establish location of buried services on and adjacent to site.

Products

1.6 MATERIALS / FILL TYPES:

.1 Granular Base material: Granular A to OPSS MUNI 1010

.2 Type 1 Fill: Existing material from berm/bullet catcher

.1 Prior to reuse, material must be screened through a 4.75mm x 4.75mm sieve and must be free of bullet shells, deleterious material and other foreign matter.

.3 Type 2 Fill : New Sand Fill (Hydro Sand) to meet following gradation:

Sieve Designation	% Passing
4.75 mm	100
2.00 mm	95 - 100
0.075 mm	0 - 10

Part 2 Execution

2.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures. Refer to Section 01 35 43 – Environmental Procedures.

2.2 SITE PREPARATION

.1 Remove all obstructions such as ice, snow, signage, bullet catch wood frames and any other obstruction from surfaces to be excavated within limits indicated.

2.3 STOCKPILING

.1 Stockpile fill materials in area indicated.

.1 Stockpile granular materials in manner to prevent segregation.

.2 Implement sufficient erosion and sediment control measures to prevent sediment release off construction boundaries and into water bodies, refer to Section 01 35 43 – Environmental Procedures.

2.4 SHORING

.1 Maintain sides and slopes of excavations in safe condition by appropriate methods and in accordance with Section 01 35 30 - Health and Safety Requirements.

.2 Engage Services of qualified Professional Engineer who is registered or licensed in the province of Ontario to design and inspect shoring, bracing and underpinning required for work.

.3 During backfill operation:

.1 Remove shoring from excavations.

2.5 DEWATERING AND HEAVE PREVENTION

.1 Keep excavations free of water while Work is in progress.

.2 Protect open excavations against flooding and damage due to surface run-off.

.3 Dispose of water in accordance with Section 01 35 43 - Environmental Procedures and in manner not detrimental to public and private property, or portion of Work completed or under construction.

.1 Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.

.4 Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, watercourses or drainage areas.

2.6 EXCAVATION

.1 Excavate to lines, grades, elevations and dimensions as indicated.

.2 Do not disturb soil or rock below bearing surfaces.

.3 Excavation must not interfere with bearing capacity of adjacent foundations.

.4 For trench excavation, unless otherwise authorized by Departmental Representative in writing, do not excavate more than 30 m of trench in advance of installation operations and do not leave open more than 15m at end of day's operation.

.5 Keep excavated and stockpiled materials safe distance away from edge of trench.

.6 Restrict vehicle operations directly adjacent to open trenches.

.7 Screen all excavated material from existing berm/bullet catcher through a 4.75mm x 4.75mm sieve.

.8 Dispose of screened bullet shells in accordance with accordance with section 01 74 21 – Construction/Demolition Waster Management and Disposal

.9 Dispose of unsuitable excavated material off site.

.10 Do not obstruct flow of surface drainage or natural watercourses.

.11 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

.12 Notify Departmental Representative when bottom of excavation is reached.

.13 Obtain Departmental Representative approval of completed excavation.

.14 Remove unsuitable material from bottom of excavation including those that extend below required elevations to extent and depth as directed Departmental Representative.

.15 Correction of unauthorized over-excavation:

.1 Excavations taken below depths shown without Departmental Representative's written authorization to be filled with Type 1 or Type 2 fill at Contractor's expense.

.16 Hand trim, make firm and remove loose material and debris from excavations.

.1 Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil.

2.7 BACKFILLING

.1 Do not proceed with backfilling operations until completion of following:

.1 Departmental Representative has inspected and approved installations.

.2 Departmental Representative has inspected and approved of construction below finish grade.

.3 Inspection, testing, approval, and recording location of underground utilities.

.4 Removal of shoring and bracing; backfilling of voids.

.5 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.

.2 Do not use backfill material which is frozen or contains ice, snow or debris.

.3 Place backfill material in uniform layers up to grades and inclination indicated.

.4 Backfilling around installations.

.1 Place bedding and surround material as specified elsewhere.

.2 Place layers simultaneously on both sides of installed Work to equalize loading.

2.8 SHORTAGE AND SURPLUS

.1 Supply necessary fill to meet backfilling and grading requirements and with minimum and maximum rough grade variance.

.2 Dispose of surplus Type 1 Fill on site as indicated by the Departmental Representative.

.3 Dispose of unsuitable excavated material off site.

END OF SECTION